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INTERPRETATION OF 2D AND 3D BUILDING DETAILS ON FACADES AND ROOFS

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Abstract. Current Internet-inspired mapping data are in the form of street maps, orthophotos, 3D models or street-side images and serve to support mostly search and navigation. Yet the only mapping data that currently can really be searched are the street maps via their addresses and coordinates. The orthophotos, 3D models and street-side images represent predominantly "eye candy" with little added value to the Internet-user. We are interested in characterizing the elements of the urban space from imagery. In this paper we discuss the use of street side imagery and aerial imagery to develop descriptions of urban spaces, initially of building facades and roofs. We present methods (a) to segment facades using high-overlap street side facade images, (b) to map facades and facade details from vertical aerial images, and (c) to characterize roofs by their type and details, also from aerial photography. This paper describes a method of roof segmentation with the goal of assigning each roof to a specific architectural style. Questions of the use of the attic space, or the placement of solar panels, are of interest. It is of interest that roofs have recently been mapped using LiDAR point clouds. We demonstrate that aerial images are a useful and economical alternative to LiDAR for the characterization of building roofs, and that they also contain very valuable information about facades.

[Conference Paper](#) (PDF, 595 KB)

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